

REMARKS

Claims 1-43 were pending in this application with claims 5, 8, 16, 17, 19, 24 and 28-43 withdrawn when the present Office Action was mailed (October 12, 2005). In this response, claim 27 has been amended, and no claims have been canceled. Accordingly, claims 1-4, 6, 7, 9-15, 18, 20-23 and 25-27 are currently presented for examination with claims 5, 8, 16, 17, 19, 24, and 28-43 withdrawn from consideration.

In the October 12, 2005 Office Action, all the pending claims were rejected. More specifically, the status of the application in light of this Office Action is as follows:

- (A) The specification of the application was noted as having informalities;
- (B) Claims 1-3, 9-15, 18, 20, 21 and 27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,425,168 to Takaku ("Takaku") in view of U.S. Patent Publication No. 2003/0024477 to Okuda et al. ("Okuda") and further in view of U.S. Patent No. 6,849,131 to Chen et al. ("Chen"); and
- (C) Claims 4, 6, 7, 22, 23, 25 and 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Takaku in view of Okuda and Chen and further in view of U.S. Patent No. 6,402,849 to Kwag et al. ("Kwag").

The undersigned attorney wishes to thank the Examiner for engaging in a telephone conference on December 28, 2005. During the telephone conference, the undersigned attorney and the Examiner discussed the claimed invention and the teachings of the cited references Takaku, Okuda, and Chen. The Examiner agreed that the cited references do not explicitly teach "a longitudinally extending gas delivery conduit carried by the longitudinally extending member" having a plurality of workpiece supports as recited in claim 1. The following remarks reflect and expand upon the agreements reached during the December 28, 2005 telephone conference.

A. Response to the Objection to the Specification

The specification was subject to an objection for allegedly having informalities. The specification has been amended as suggested by the Examiner. Accordingly, the objection to the specification should be withdrawn.

B. Response to the Section 103(a) Rejections – Takaku, Okuda, and Chen

Claims 1-3, 9-15, 18, 20, 21, and 27 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Takaku in view of Okuda and further in view of Chen. For the reasons discussed below, a *prima facie* case of obviousness has not been made with respect to these claims. Accordingly, the § 103(a) rejections of these claims should be withdrawn.

Claim 1 is directed to a microfeature workpiece holder adapted to hold a plurality of microfeature workpieces for chemical processing. The holder includes a longitudinal extending member having a plurality of workpiece supports spaced longitudinally along a length of a longitudinally extending member. The workpiece supports are adapted to support the plurality of microfeature workpieces in a spaced apart relationship for processing. The holder further includes a longitudinally extending gas delivery conduit carried by the longitudinally extending member. The gas delivery conduit has an inlet, a first outlet, and a second outlet spaced longitudinally from the first outlet. The first outlet is positioned to direct a process gas flow intermediate a first pair of the workpiece supports. The second outlet is positioned to direct a process gas flow intermediate a second pair of the workpiece supports.

Takaku discloses making the reaction tube of a thermal chemical vapor deposition apparatus from quartz glass with at least one sandblasted internal wall surface portion (column 6, lines 50-65). Takaku discloses that the apparatus may include a wafer boat having a disk-like bottom plate and a disk-like top plate, and a pair of side poles and a pair of back poles standing between the bottom plate and the top plate (column 4, lines 55-61). A plurality of holding grooves are carved in and along the side poles and back poles so that the wafers are horizontally in a stacking manner

disposed therein (column 4, lines 62-64). The internal surfaces of the reaction tubes and all the surfaces of the wafer boat are sandblasted to reduce thermal cracking (column 5, lines 30-43).

Okuda discloses a substrate processing apparatus having a distribution nozzle disposed in a reaction chamber (Abstract). Specifically, Okuda discloses that a nozzle surrounding a part of the inner wall of the reaction tube can be constructed from an arc-shaped segment with both ends welded to the reaction tube (column 3, paragraph [0042]). A plurality of gas nozzle openings are provided on the arc-shaped segment as holes or slits along a tube axial direction (column 3, paragraph [0043]). The holes or slits are provided horizontally to correspond to each wafer loaded in a wafer boat (column 3, paragraph [0043]).

Chen discloses a low pressure CVD reaction furnace where a truncated dummy plate can be used for promoting substantial uniform flow of process gas (Abstract). The reaction furnace typically includes a reaction chamber for processing multiple substrates held by a wafer boat (column 5, lines 13-16). A gas inlet tube may extend downwardly into the reaction chamber and a central gas inlet opening may be provided in the top center of the reaction chamber for distributing reaction gases into the chamber (column 5, lines 18-22). A gas outlet is typically located on the opposite side of the wafer boat with respect to a gas inlet tube (column 5, lines 23-26). At least two and preferably three of the truncated dummy plates are positioned in the bottom portion of the wafer boat to promote uniform flow of the process gas (column 5, lines 34-38).

There is no motivation or suggestion to combine the teachings of Takaku, Okuda, and Chen. Takaku teaches constructing a reaction chamber from quartz with sandblasted surfaces and is silent on improving gas distribution. Okuda teaches having a distribution nozzle on the inside wall of the reaction chamber. Chen teaches placing dummy plates on the wafer boat for modifying gas flow fed from a gas inlet tube extending downwardly into the reaction chamber and a central gas inlet opening on top of the reaction chamber. None of these references suggests that "a longitudinally

extending gas delivery conduit" can be carried by "the longitudinally extending member" having a plurality of workpiece supports.

In fact, if the cited references were to be combined, the combination would probably render the resulting apparatus unsatisfactory for its intended purpose. Generally, two different methods of regulating gas flow often may interfere with each other and, as a result, defeat each other's designed purposes. For example, in Okuda, the nozzle receives and divides the process gas into smaller streams to be fed into the reaction chamber so that each stream is designed to have the same flow rate. Chen, on the other hand, teaches using truncated dummy plates to direct some process gas to flow axially for modifying a gas flow profile in the reaction chamber. If Okuda were to be combined with Chen, the truncated dummy plates of Chen would redistribute the divided gas streams exiting from Okuda's nozzle in a non-uniform manner by letting some gas flow axially in the reaction chamber. As a result, Chen's truncated dummy plates would actually counteract the gas distribution effects of Okuda's nozzle. Accordingly, one skilled in the art would not be motivated to combine Okuda with Chen, and there is no reasonable expectation that such a combination would produce a successful result.

In addition, the combined teachings of Takaku, Okuda and Chen fail to teach or suggest at least one feature of claim 1. As agreed by the Examiner during the telephone conference on December 28, 2005, the combined teachings of Takaku, Okuda, and Chen fail to teach or suggest a longitudinally extending gas delivery conduit carried by a longitudinally extending member having a plurality of workpiece supports as recited in claim 1. During the telephone conference, the Examiner pointed to the case law cited in the October 12, 2005 Office Action (page 4) to remedy this deficiency. Applicants are at a loss as to how these cases can suggest that a *prima facie* case under Section 103 may be established when a claimed feature is entirely missing from all the cited references and is not suggested by any of the references. To establish a *prima facie* case of obviousness, "the prior art reference (or references when combined) must teach or suggest all the claim limitations." *MPEP* 2143. Here, none of

the cited references teaches or suggests, at least, "a longitudinally extending gas delivery conduit carried by a longitudinally extending member."

Accordingly, claim 1 is patentable over the combination of Takaku, Okuda, and Chen because there is no suggestion or motivation to combine, no reasonable expectation of success, and the combined teachings fails to teach or suggest all the claim limitations of claim 1. Claim 27 has been amended to contain subject matter generally analogous to that of claim 1 and so is patentable over the combination of Takaku, Okuda, and Chen. Claims 2, 3, 9-15, 18, 20 and 21, which depend from claim 1, are also patentable over the combination of Takaku, Okuda, and Chen for the reasons discussed above and also because of the additional features of these dependent claims. Accordingly, the § 103 rejections of claims 1-3, 9-15, 18, 20, 21, and 27 should be withdrawn.

C. Response to the Section 103 Rejections – Takaku, Okuda, Chen and Kwag

Claims 4, 6, 7, 22, 23, 25, and 26 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Takaku in view of Okuda and further in view of Chen and Kwag. For the reasons discussed below, a *prima facie* case of obviousness has not been established with respect to these claims. Accordingly, the § 103(a) rejections of these claims should be withdrawn.

Kwag teaches a semiconductor fabrication apparatus for depositing a film (Abstract). The apparatus includes a process tube having gas injection portions in a slit configuration and waste gas exhaust portions formed as holes integrated into the interior of the body of the process tube (column 5, lines 56-66). A wafer boat carrying a plurality of wafers can move up and down in the process tube (column 4, lines 52-55).

As discussed above, the combined teachings of Takaku, Okuda, and Chen fail to teach or suggest "a longitudinally extending gas delivery conduit carried by a longitudinally extending member" of claim 1, and there is no motivation or suggestion to combine the cited references. Kwag fails to cure this deficiency. Assuming, that the

injection and exhaust portions of Kwag correspond, at least in part, to the longitudinally extending gas delivery conduit of the rejected claims, then the injection and exhaust portions are separate from (i.e., not carried by) the "longitudinally extending member having a plurality of workpiece supports." As a result, the combined teachings of Takaku, Okuda, Chen, and Kwag fail to teach or suggest at least one feature of claim 1, and there is no motivation or suggestion for modification. Claim 22 includes subject matter generally analogous to that of claim 1 and so is patentable over the combined teachings of Takaku, Okuda, Chen, and Kwag. As a result, claims 4, 6, 7, 23, 25, and 26 are patentable over the combined teachings of Takaku, Okuda, Chen and Kwag because these claims depend from claims 1 or 22, and also because these claims include additional features. Accordingly, the § 103(a) rejections of claims 4, 6, 7, 22, 23, 25, and 26 should be withdrawn.

D. Examination of the Withdrawn Claims

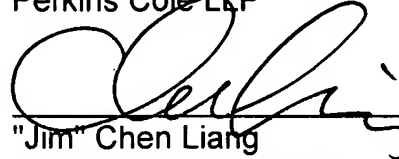
Claims 5, 8, 16, 17, 19, 24 and 28-43 were withdrawn from consideration in response to an earlier species restriction requirement. Applicant expressly requests consideration and examination of the withdrawn claims upon indication of allowable subject matter that is generic to these claims.

E. Conclusion

In view of the foregoing, the pending claims are patentable over the applied art. The applicant respectfully requests reconsideration of the application and a Notice of Allowance. If the Examiner has any questions or believes a telephone conference would expedite prosecution of this application, the Examiner is encouraged to call the undersigned representative at (206) 359-6038.

Respectfully submitted,

Perkins Coie LLP

A handwritten signature in black ink, appearing to read "Jim Chen Liang", is written over a horizontal line.

"Jim" Chen Liang
Registration No. 51,945

Date: 1/12/06

Correspondence Address:

Customer No. 46844

Perkins Coie LLP

P.O. Box 1247

Seattle, Washington 98111-1247

(206) 359-8000